2017 Stream Survey Report

BEAVER CREEK

Rotation (WBIC 299600)

Shawano County

Prepared by Joe Dax

Introduction and Objectives

Beaver Creek is a Class I trout stream consisting of 3.1 miles of trout water. Beaver Creek originates in Shawano County and flows south into the Embarrass River. Three road crossings, Beaver Creek Lane, Friendship Road, and Spruce Road provide public fishing access to Beaver Creek. Objectives of the rotation surveys are to determine species composition, relative abundance, and size structure for trout and other gamefish present.

Regulations Category: Green **Size Limit:** Any length **Daily Bag Limit:** 5 (in total)

WISCONSIN DNR CONTACT INFO.

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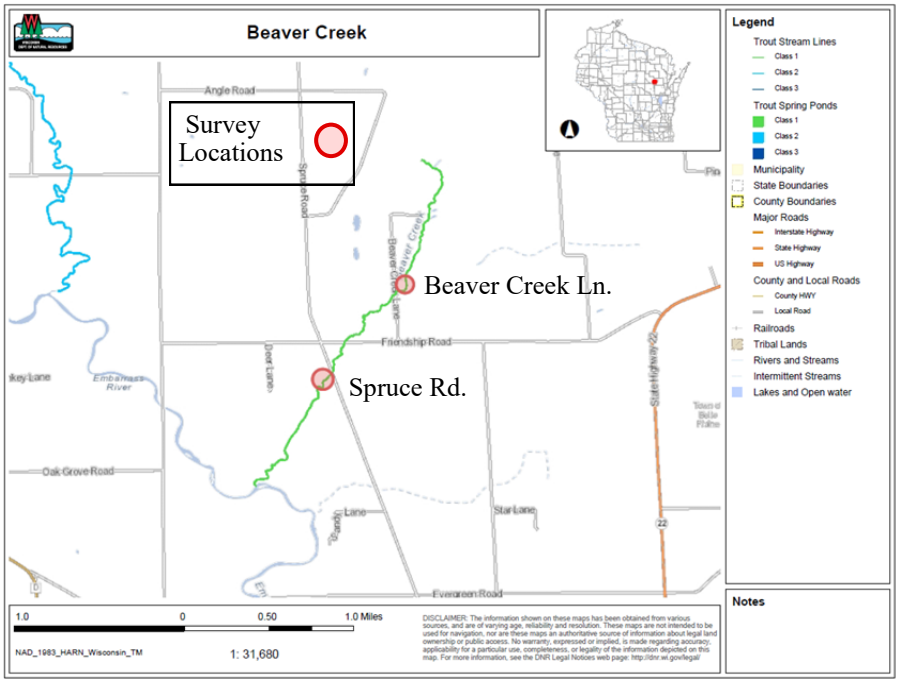
Survey Information

Station	Survey Date	Station Length	Temperature (°F)	Mean Stream Width	GPS (Start/Finish)	Gear	Number of Netters	Index of Biotic Integrity
Spruce Rd.	06/19/2017	420 ft	54	12.0 ft	44.72666, -88.71690 44.72712, -88.76626	Tow-Barge Shocker	3	Yes
Beaver Creek Ln.	06/19/2017	565 ft	57	14.7 ft	44.73333, -88.70906 44.73420, -88.70773	Tow-Barge Shocker	3	No



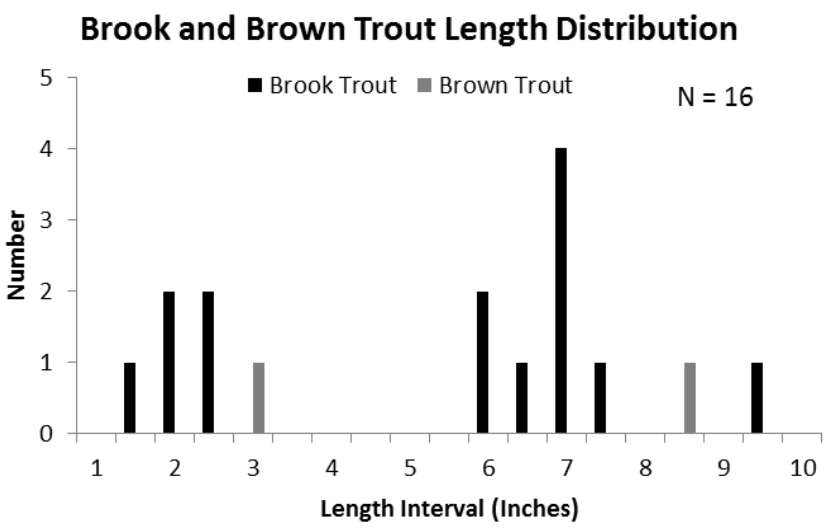
Survey Method

- All streams are sampled according to WDNR wadeable streams monitoring protocols. Beaver Creek is on a 12 year rotation schedule with two sites identified for the segment of stream in Shawano County.
- All sampling stations are electrofished with either a towed barge shocker (pictured below) or backpack shocker.
- Sampling distance is at least 35 times the mean stream width or a minimum of 330 ft.(100 meters).
- All trout and other gamefish are measured for length and examined for fin-clips.
- In at least one stream segment (if multiple stations are being sampled) all fish species are collected and counted for calculation of an Index of Biotic Integrity (IBI).
- Metrics used to describe trout populations include average length, catch per unit effort (CPUE), and length frequency distributions.

Metric Descriptions

- **Catch per unit effort (CPUE)** is a method of quantifying fish population relative abundance. For all trout surveys, we typically quantify CPUE as the number of a given size class of trout captured per mile of stream. CPUE indexes are compared to other trout streams throughout the state of Wisconsin by what percentile (PCTL) they fall out in . For example, if a CPUE is in the 90th percentile, it is higher than 90% of the other CPUEs in the state. CPUE percentiles can also be used to categorize trout abundance as low density (<33rd percentile), moderate density (33rd - 66th percentile), high density (66th - 90th percentile), and very high density (> 90th percentile).
- **Index of Biotic Integrity (IBI)** is a rating of environmental quality based on the fish assemblage. Scores of 90-100 indicate excellent stream quality while scores less than 30 indicate poor stream quality. Our analysis utilizes the IBI for Wisconsin coldwater streams. Coldwater streams in Wisconsin are those in which the maximum daily mean water temperature is usually <22°C (71.6°F). A coolwater stream IBI may also be used when a stream doesn't fit the temperature criteria for a coldwater stream.
- **Length frequency distribution** is a graphical representation of the number or percentage of fish captured by half inch or one inch size intervals.

Size and Abundance (CPUE) Metrics											
Station	Species	Total Number Sampled	Average Length (inches)	Length Range (inches)	CPUE calculated as the number of trout of a given size per mile (Number in parentheses represents the statewide percentile of a given metric)						
					Total CPUE (PCTL)	YOY CPUE	≥5" CPUE (PCTL)	≥6" CPUE (PCTL)	≥8" CPUE (PCTL)	≥10" CPUE (PCTL)	≥12" CPUE (PCTL)
Spruce Rd.	Brook trout	14	5.5	(1.7 - 9.7)	176 (48th)	63	113 (55th)	113 (65th)	13 (44th)	-	-
Spruce Rd.	Brown trout	2	6.0	(3.4 - 8.7)	25 (22nd)	13	13 (17th)	13 (19th)	13 (28th)	-	-
Beaver Creek Ln.	Brook trout	0	0	-	-	-		-	-	-	-



Fathead Minnow (pictured above) is a small nongame species commonly found in streams with emergent vegetation and pools. Unlike trout, they are a very tolerant fish and can live in streams and ponds with poor water quality. When found, this fish species is not commonly indicative of a high quality trout stream.

Species Community and IBI for Spruce Rd.			
Species Sampled	Total	IBI Score	Integrity Rating
BROOK STICKLEBACK	1	Coldwater: 30	Coldwater: Fair
BROOK TROUT	14		
BROWN TROUT	2		
BURBOT	2		
CENTRAL MUDMINNOW	6		
COMMON SHINER	2		
FATHEAD MINNOW	51		
WHITE SUCKER	1		

Summary

- Brook trout density in Beaver Creek was low to moderate with 5+ inch in the 55th percentile. No Brook trout were captured in the headwaters near Beaver Creek Ln, likely due to more swampy conditions with soft sediment and low flow.
- Brown trout were present at low densities, with total CPUE for brown trout in the 22nd percentile.
- Young of year (YOY) and yearling density were also at low levels.
- The fish assemblage sampled in Beaver Creek at Spruce Rd. indicated a poor to fair coldwater environment.
- Sections of Beaver Creek are known to have marginal water quality and habitat for trout and the results from our IBI support this. For example, the upper reaches above Beaver Creek Lane are low gradient with significant amounts of swampy habitat. The stream bed in this section consists of a foot or more of very soft sediment in most places. Not surprisingly, no trout were sampled in this section.